The Role of Antihypoxants in the Treatment of Chronic Obstructive Lung Disease

LakotseninaO.YuSokolova., E.A., GoncharovaO.M., LobanovaE.V.

Amur State Medical Academy,Blagoveshchensk, Russia

Summary. The study of the efficiency of reamberin possessing antihypoxantic activity in the complex treatment of COLD was carried out. The improvement of the indices of FER, diastolic function of the right ventricle, the reduction of lung hypertension and also the increase of the length of remission were revealed.

Key words: antihypoxants, reamberin, COLD, lung hypertension.

Chronic obstructive lung disease (COLD) is one of the leading causes of morbidity and mortality all over the world. Lung hypertension (LH) and its direct consequence – chronic lung heart are more frequent and prognostically unfavorable complications of COLD (9). The involvement of pulmonary circulation with the formation of lung hypertension into the pathologic process determine often the severity of the course, the character and the prognosis of the disease.

The progressing obstruction of lungs is considered to be the leading cause of the development of lung hypertension in patients with COLD. The increase of intra-alveolar pressure leads to the small lung vascular squeezing, increases the resistance in the pulmonary circulation, which causes the elevated work of the right ventricle. Along with the progression of the disease, alveolar hypoxia leads to the development of alveolar hypoxemia and tissue hypoxia, aggravating lung hypertension (1,4). Besides this the decrease of antioxidantive protection takes place during COLD, which in its turn is responsible for the aggravation of hypoxia and hypoxemia.

In this connection there occurs the necessity to study the efficiency of preparations possessing antioxidantive, antihypoxant, cytoprotective activity in the complex treatment of patients with COLD. According to the data of some authors (2,6,7,8) the more perspective method is the use of substrate antihypoxants, salts of amber acid under the influence of which the metabolic acidosis decreases.

Reamberin (firm Polusan, St. Petersburg) represents 1,5% of sodium – methyl glutamine salt solution of amber acid and balanced set of microelements: sodium, potassium, magnesium. Injected intravenously, reamberin influences positively on the oxygenation of the cellular medium, stabilizes the structure and functional activity of mitochondria and electrolyte metabolism on the cellular level (2,6).

The aim of the study. We studied the influence of reamberin in combination with thiotropia-bromide on the external respiration and life quality of patients with moderate and severe chronic obstructive lung disease in patients of working ability, of invalids of II-III groups according to this disease.

48 patients (28 men and 20 women) with II and III stages of COLD in the phase of remission were included into this study. The diagnosis and the severity of COLD were made according to the recommendations of GOLD (2006). The mean age made up 51,3 ± 1,8 years. Among examined patients 17 persons were invalids of the III group, 9 – of the II group. Patients were divided into 2 groups. In group I 30 patients with COLD received Spiriva preparation in the dose of 18 mkg/d as a basic treatment within 3 months. Patients in group II (18 persons) received Spiriva in the same dose and reamberin in the dose of 400 ml of 1,5% solution intravenously in drops in a day. The course of treatment contained 5 infusions. Patients with severe COLD having arterial hypertension, ischemic heart disease, diabetic mellitus and active smokers were not included into this study.

All patients before and after 3 months of the treatment were carried out spirography with Micro (Great Britain) and echocardiography with Stationary ultrasound scanning system Acuson-128

(USA) using the sector sensor with frequency of 2,5 – 3,5 mg/Hz according to the standard method in M-V and Doppler regime.

Statistic data were received with the help of applied programmes Statistica 6.0 (Stat Soft, Inc), Biostat, Microsoft Excel with parametric and non-parametric criteria.

Results and Discussion. All patients with COLD showed disorders of ventilation functions mainly of the obstructive type. The decrease of FVCL (Forced Vital Capacity of Lungs), which partially may be caused by the restrictive processes in lungs.

Table 1

Dynamics of indices of external respiration in patients with COLD

Indices	I-st group n=30 (before treatment)	I-st group n=30 (after treatment)	II-nd group n=18 (before treatment)	II-nd group n=18 (after treatment)
FVCL	61,2±2,4%	65,9±2,9%*	60,7±3,4%	67,9±1,9%**
FEV1	62,5±2,5%	66,3±1,6%*	61,9±1,5%	68,1±2,6%**
FEV1/FVCL	59,7±2,6%	63,8±1,7%*	59,4±3,1%	65,7±2,7%**

* - p<0,05; ** - p<0,001

Lung hypertension was diagnosed in 89% of patients with COLD. The dependence of SPLA indices on the severity of the disease was revealed. Lung hypertension in majority of cases was of moderate character, only in 6 patients (35,3%) with the IIIrd stage of the disease this index exceeded 50 mm/Hg. The findings are presented in the Table №2. There established correlations between FEV1 and systolic pressure in the pulmonary artery (-0,52) and also between FEV and TMRWRV (p<0,05).

After treatment authentic significant improvement of FER in both groups took place but in patients of the group I authentity of differences was higher – p<0,001 (Table 1). In patients of the group II who received reamberin, the indices of diastolic functions of the right ventricle (DFRV) authentically improved (Table 2). The duration of the remission in the Ist group after treatment increased by 11±4 days, in the II-nd group – by 21±0,98 days (p<0,05).

Table 2

Indices of cardiopulmonary hemodynamics in patients with COLD

Indices	I-st group n=30 (before treatment)	I-st group n=30 (after treatment)	II-nd group n=18 (before treatment)	II-nd group n=18 (after treatment)
LA (cm)	4,25±0,75	4,2±0,9	4,26±1,4	4,12±1,1
TMPWLV (cm)	1,12±0,18	1,02±0,08	1,09±0,1	0,94±0,12
FELV	0,62±0,04	0,64±0,12	0,61±0,07	0,68±0,06*
FDS RV (cm)	3, 3,42±0,12	3,42±0,12	3,31±0,2	3,45±0,11
TMAWRV (cm)	0,47±0,02	0,48±0,05	0,48±0,02	0,46±0,05
SPPA(mm Hg)	38,7±3,2	32,7±1,8*	39,1±1,2	30,6±0,2**
DFLV	0,98±0,12	1,2±0,16	0,96±0,2	1,1±0,24
DFRV	0,84±0,03	0,89±0,13	0,83±0,09	1,14±0,29*

* - p<0,05; ** - p<0,001

Conclusions. The obtained data testify to the fact that the use of reamberin in the combination with Spiriva preparation in patients with COLD without exacerbation improves FER indices, decreases lung hypertension and increases the duration of the remission.

References:

1. Borukaeva I.H. Peculiarities of respiratory hypoxia in patients with chronic obstructive lung decease.
2. Veber V.R. Perspectives of clinical use of reamberin in therapy of liver lesions in narcomaniacs. //Socially significant diseases and conditions. – 2006.- №4, pp. 152-156. // Clinico-functional, metabolic and morphologic peculiarities of the formation of chronic lung heart in patients with COLD. Blagoveshchensk, 2008, p. 146.

3. Krasnova Yu.N., Dzizinsky Ye.V., Grimailova Ye,V. //Atmosphere. 2006. №1. pp.52-56.
4. Landysheva I.V., Landyshev Yu.S., Grigorenko A.A. Dubyaga A.P. //Clinico-functional, metabolic and morphologic peculiarities of the formation of chronic lung heart in patients with COLD. Blagoveshchensk, 2008. p.146.
5. Menshikova I.G., Loskutova N.V., Sundukova Ye.A. //Far Eastern med. Jour. 2008, №1, pp.17-19.
6. Okovity S.V. Clinical pharmacology of antihypoxants. P.II FARMMindex Practice, issue7, pp.48-63
7. Solovyeva S.V. The state of antihypoxic and nonspecific protective mechanisms in inhabitants of the south and north in Tyumen Region. Thesis of CMS 2007, p34.
8. Uklistaya Ye.A., Trubnikov G.A., Panov A.A, et al. //Antioxidants and antihypoxants in the complex treatment of patients with chronic bronchitis.// Southern Russian Med. Jour. 1998, №4. pp.34-36.
9. Chuchalin A.G. Pulmonology, 2004 №1, ppp.7-14

The virus-associated community-acquired pneumonia

LandyshevJ.S., GoborovN.D., KondrahinaA.P.

Amur State Medical Academy, Department of Hospital Therapy, Amur Region Clinical Hospital.Blagoveshchensk, Russia.

Abstracts: Presented information about features of the diagnosisand the clinical current of the virus-associated community-acquired pneumonia.

Key words: pneumonia, virus A/H1N1swl.

According to the time of its emergence pneumonia as a complication of influenza is subdivided into:

1) direct influenza viral pneumonia which is diagnosed starting from the 1-2 day of influenza;
2) secondary viral-bacterial pneumonia, arising at the 4-9 day of illness;
3) secondary bacterial pneumonia arising at 12-14 day of illness.

Materials and methods. Now days it's generally accepted that through oppression of immunogenesis and decreasing of physiological protection barriers of tracheobronchiatreel's mucus viruses pave the way for activation of vital life of pathogenic bacteria.

Virologists have discovered more than 200 kinds of viruses that can cause respiratory disease. Among them, the most common are influenza viruses, adenoviruses, mycoplasma, psittacosis, rickettsia. The frequency of influenza pneumonia increases significantly during influenza epidemias and pandemias, and declines to 5-1% in interepidemic period. For the emergence of pneumonia in patients with influenza bacterial infection's adhesion is very important (V. Silvestrov, E.S.Ketaladze).

Results and discussion. Mechanism for the dissemination is air-droplet. The incubation period is 1-4 days. The stage of viral shedding lasts for 1-7 days after emergence of clinical symptoms of the disease. The immunity after one has been ill with one strain of influenza virus is acquired only for this certain virus.Because of its epitheliotropic, for influenza A/H1N1swl columnar epithelial cells of the respiratory tract are the primary localization of virus reproduction and development of pathological process. From the places of primary localization viruses soon pass into the blood, than when viremia develops, it is usually associated with a general toxic effect on the body, which is in contrast to the other acute respiratory viral infections (ARI) expressed in a specific influenza intoxication.